

# **CONNER TAPE•STOR™** FOR IBM AND COMPATIBLE PCS

## **DATA BACKUP SYSTEM HARDWARE INSTALLATION MANUAL**

**C250MQ  
C250MQP  
C2150S  
C2525S  
C2750S  
C4320RT  
C4324RP**

**CONNER**  
The Storage Answer

## FCC Notice

This equipment generates and uses radio frequency energy and, if not installed and used in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception which could void the user's authority to operate the equipment. It has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If interference does occur, try to correct it by taking one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the computer and the receiver.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Further, this equipment complies with the limits for a Class B digital apparatus in accordance with Canadian Radio Interference Regulations.

Cet appareil numérique de la classe B est conforme au Règlement sur le brouillage radioélectrique, C.R.C., ch. 1374.

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# Table of Contents

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	<b>Introduction</b>	<b>v</b>
<b>1</b>	<b>C250MQ Installation</b>	<b>1</b>
	Your Package Contains	1
	Tools You Will Need	2
	Take These Precautions	2
	Installing the Drive In a 5.25" Drive Bay	3
	Installing the Drive In a 3.5" Drive Bay	10
	Loading and Unloading Tape Cartridges	12
	Recommended Tapes	13
	Setting the Write Protect Switch	13
	Caring for Tape Cartridges	14
	Cleaning the Tape Drive Head and Capstan	15
	Troubleshooting	16
<b>2</b>	<b>C250MQP Installation</b>	<b>17</b>
	Your Package Contains	17
	Loading and Unloading Tape Cartridges	21
	Recommended Tapes	22
	Setting the Write Protect Switch	22
	Caring for Tape Cartridges	23
	Cleaning the Tape Drive Head and Capstan	24
	Enhancing Performance	25
	Troubleshooting	26

<b>3</b>	<b>C2150S and C525S Installation</b>	<b>27</b>
	Your Package Contains	27
	Tools You Will Need	28
	Take These Precautions	28
	Installing the Drive	29
	Loading and Unloading Tape Cartridges	35
	Write-Protecting a Tape	36
	Recommended Tapes	37
	Caring for Tape Cartridges	38
	Cleaning the Tape Drive	39
	Troubleshooting	40
<b>4</b>	<b>C2750S Installation</b>	<b>41</b>
	Your Package Contains	41
	Tools You Will Need	42
	Take These Precautions	42
	Installing the Drive	43
	Loading and Unloading Tape Cartridges	49
	Manually Unloading a Cartridge	50
	Write-Protecting a Tape	51
	Recommended Tapes	52
	Caring for Tape Cartridges	53
	Cleaning the Tape Drive	54
	Troubleshooting	54
<b>5</b>	<b>C4320RT and C4324RP Installation</b>	<b>55</b>
	Your Package Contains	55
	Tools You Will Need	56
	Take These Precautions	56
	Installing the Drive	57
	Loading and Unloading Tape Cartridges	62
	Setting the Write Protect Switch	62
	Qualified DAT Media	63
	Interpreting the Drive's LEDs	63
	Caring for Tape Cartridges	64
	Cleaning the Tape Drive	65
	Troubleshooting	66



# Introduction

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This manual shows you how to install the Conner Tape • Stor series of tape drives.

The manual is divided into five chapters, each of which describes a drive or set of drives. These chapters are:

<b>Chapter:</b>	<b>Shows you how to install the:</b>
1	C250MQ internal minicartridge drive
2	C250MQP external parallel minicartridge drive
3	C2150S and C2525S internal data cartridge drives
4	C2750S internal data cartridge drive
5	C4320RT and C4324RP internal DAT drives

If you have need of assistance and cannot find the information you require in this manual, call our technical support department at one of these numbers:

(407) 263-3500  
(800) 227-6296  
(407) 263-3536 (fax)

European customers:

0494-473434 INTL                      (44) 494-473434  
0494-472044 INTL                      (44) 494-472044 (fax)



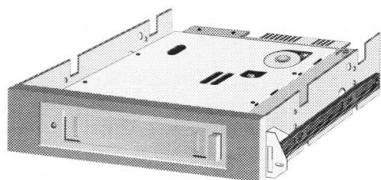
This chapter shows you how to install a Conner Tape • Stor C250MQ DC2000 internal floppy minicartridge drive in an IBM PC/AT or compatible computer with a:

- 5.25", half-height drive bay
- 3.5", 1"-height or half-height drive bay

The tape drive transfers data at 1Mbps. If your floppy disk controller does not support this rate, you may want to contact your supplier to obtain a high-speed Conner controller, which can reduce transfer rate times by half.

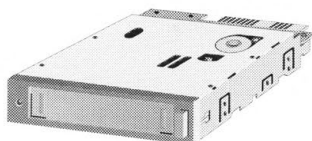
## **Your Package Contains:**

*Depending upon the model purchased, one of these tape drives:*



Tape Drive

- 5.25" configuration

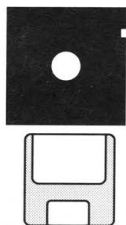


Tape Drive

- 3.5" configuration (shown)
- 3.5" half-height configuration (not shown)



Software Package



Tape Drive Installation Manual

## Tools You Will Need

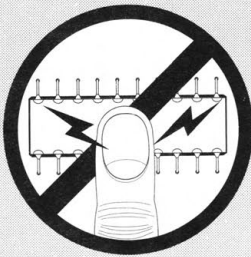
You will need one or both of these tools to install the drive in your computer:

- a flat-bladed screwdriver
- a Phillips screwdriver

► **Note:** Be sure that your screwdrivers are the correct size for the screws, or you could strip the screw heads.

## Take These Precautions

To protect your equipment from electrostatic damage, perform the installation at a staticsafe workstation. If one is not available follow these guidelines:



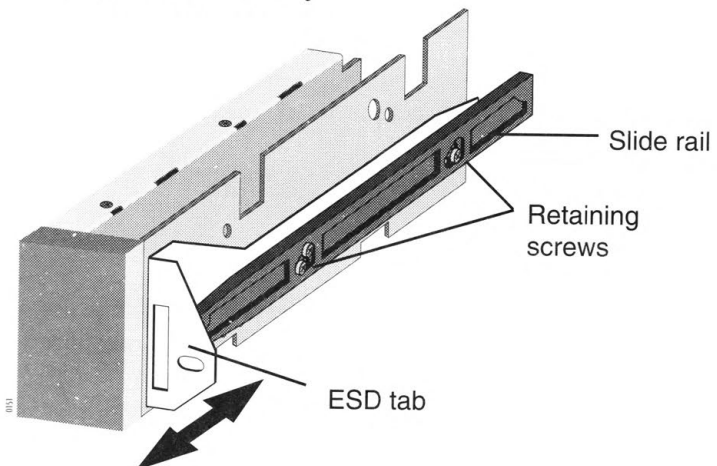
1. Work in an uncarpeted area.
2. Before removing the equipment from its anti-static bag, discharge static electricity by touching your computer's metal chassis (or any other grounded object) while touching the anti-static bag.
3. Do not touch circuit boards unless instructed to do so.

## Installing the Drive In a 5.25" Drive Bay



**Warning:** Disconnect all power sources from your computer before attempting this installation, or you may risk electrical shock.

- **Note:** Because computer models can vary between manufacturers, you may need to refer to your computer manual for specific installation instructions.
1. Write down the serial number and model number shown on the drive and put this information in a safe place. You may need this information if you ever call for service.
  2. Remove the computer cover and face plate from the drive bay in which you will install the drive.
  3. If you have devices installed into any drive bays adjacent to the one selected, partially removing those devices may give you more working space.
  4. Loosen (but do not remove) the three retaining screws on the right side of the drive so that you can slide the metal ESD tab easily:



5. Slide the tape drive into the drive slot and adjust the ESD tab's position:

- a. Slide the tape drive into the computer so that the drive bezel and computer face plate are flush.

Bezel

- b. Adjust the ESD tab so that it is in contact with the metal computer chassis.

ESD Tab

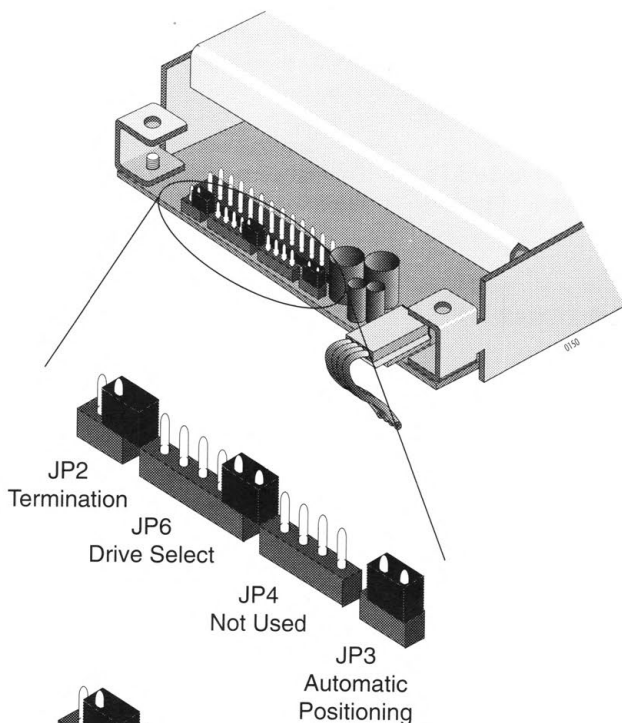
6. Remove the tape drive and tighten the securing screws you loosened when you prepared the tape drive for installation.

► **Note:** Be careful not to move the ESD tab or you will need to readjust it.

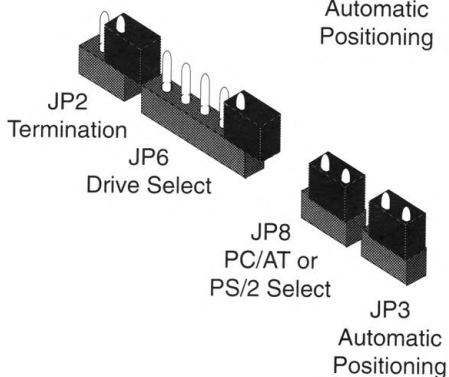
7. Determine if you need to change the drive's jumper settings.

The jumpers are located on the main circuit board beneath the adapter board as shown below and are described on the next page.

***Your jumpers  
may look like  
this:***



***Or like this:***








Here is a description of each jumper. For most applications, you will **not** need to change jumper settings.

<b><i>Jumper:</i></b>	<b><i>Description:</i></b>
<b>Termination (JP2)</b>	<p>The tape drive and floppy drive in your system will be connected by a data cable. The last drive on the cable must be terminated.</p> <p>If you install the drive so that it is not the last drive, or if you install the drive in a PS/2, leave this jumper alone.</p> <p>If you install the drive as the last drive, move the black jumper connector so that it connects both pins on this jumper block. Also, make sure you disable termination on the drive that was previously the last drive.</p>
<b>Drive Select (JP6)</b>	<p>You can configure the drive to be the first, second, or third floppy device in your computer. As shipped, the drive is set for soft select, which allows most systems to recognize the drive, regardless of its position.</p> <p>Some floppy disk controllers, such as Conner's high-speed controllers, require that you hard select the drive select. In this case, you must set this jumper as described in your disk controller manual and as shown on the next page.</p>
<b>Not Used (JP4)</b>	Not used.
<b>PC/AT or PS/2 Select (JP8)</b>	<p>If your drive has this jumper and you are installing the drive in a PS/2 with PS/2 driver logic, move the black jumper connector so that it no longer connects both pins on this jumper block.</p> <p>Otherwise, leave this jumper alone.</p>
<b>Automatic Positioning (JP3)</b>	<p>For most applications, leaving this jumper alone allows the drive to automatically read header information and position the tape once a cartridge is inserted in the drive.</p> <p>For most UNIX and XENIX applications, move the black jumper connector so that it no longer connects both pins on this jumper block.</p>



Here are drive select settings you can make with the drive select jumper (JP6):

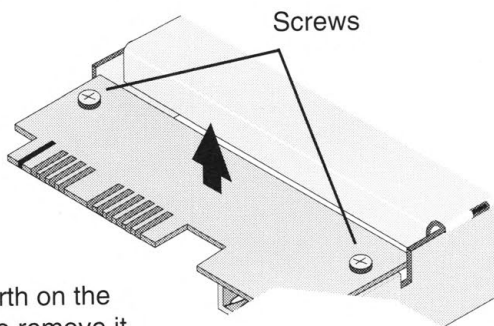
For this Setting:	Set the Jumper Like This:
Soft Select (Factory Setting)	
Drive Select 1	
Drive Select 2	 or 
Drive Select 3	

8. There is an adapter board mounted on the back of the drive's main circuit board, which provides data connection through a 34-pin edge connector and power connection through a large 4-pin connector. You should remove the adapter board **only** if one or more of the following is true:

- The drive will not fit into the computer with the adapter board installed.
- You have only header connectors available on your data cable.
- You have a small power connector available from your power supply.
- You need to change the drive's jumper settings.

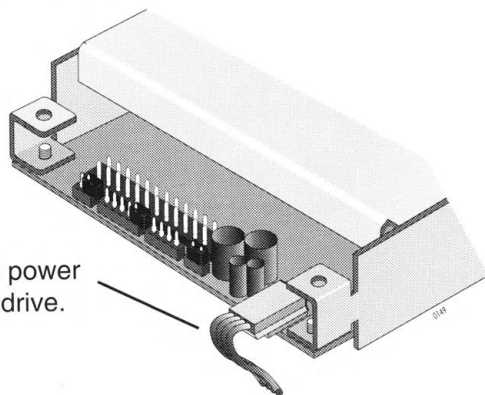
To remove the adapter board:

- a. Remove the two screws that secure the adapter board.

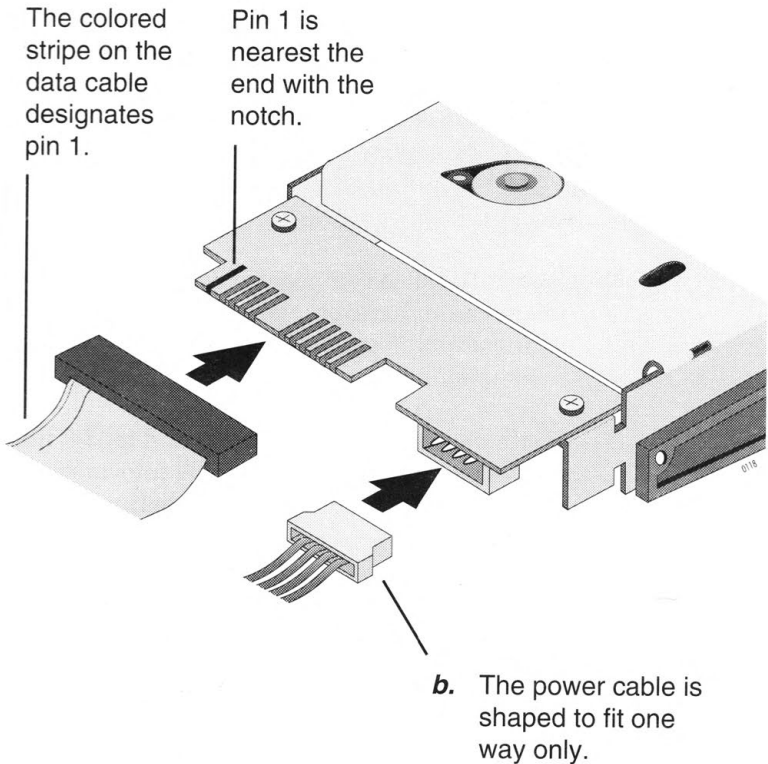


- b. Rock back and forth on the board as you lift to remove it.

- c. Disconnect the power cable from the drive.



9. If necessary, set the drive's jumpers as you determined in step 7 and re-attach the adapter board.
10. Connect the computer floppy device data cable and an available power cable to your tape drive:
  - a. Align pin 1 of the data cable with pin 1 of the drive connector.



- c. Make sure that all cable connections are secure and that they will not bind or become crimped when you replace the cover.

If you are installing the drive as a third internal device and do not have available data and power cables, contact your supplier to obtain a third drive installation kit.

11. Secure the tape drive and any devices you may have unsecured during the installation.
12. Replace the computer cover and connect any peripherals you may have disconnected during the installation.
13. Plug the computer and any peripherals into an AC power outlet.

## ***Installing the Drive In a 3.5" Drive Bay***

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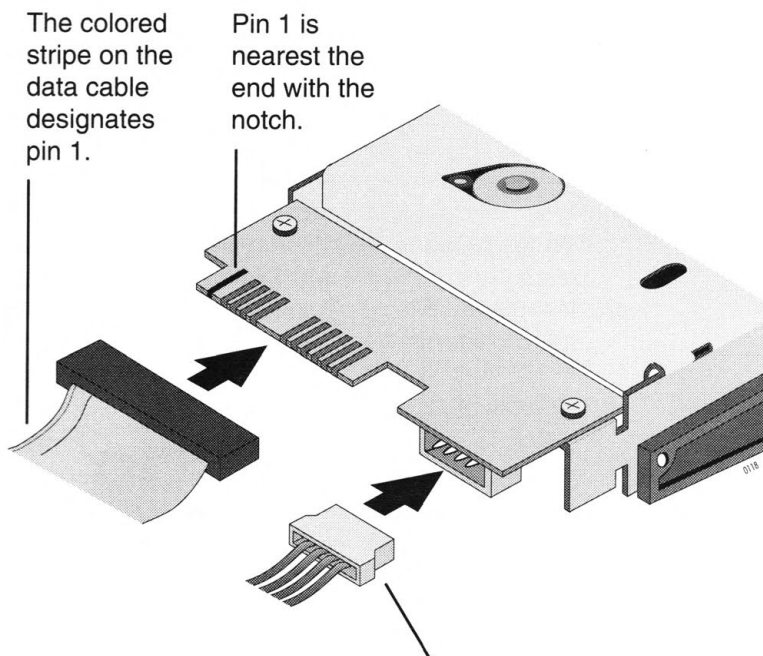
**Warning:** Disconnect all power sources from your computer before attempting this installation, or you may risk electrical shock.

- **Note:** Because computer models can vary between manufacturers, you may need to refer to your computer manual for specific installation instructions.
1. Write down the serial number and model number shown on the drive and put this information in a safe place. You may need this information if you ever call for service.
  2. Remove the computer cover and face plate from the drive bay in which you will install the drive.
  3. If you have devices installed into any drive bays adjacent to the one selected, partially removing those devices may give you more working space.
  4. Slide the tape drive into the drive slot.

5. Connect the computer floppy device data cable and an available power cable to your tape drive:

► **Note:** If you are installing a high speed controller board for use with your tape drive, read ***Configuring the Drive Select Setting*** on page 16 before you perform this step.

- a. Align pin 1 of the data cable with pin 1 of the drive connector.



- c. Make sure that all cable connections are secure and that they will not bind or become crimped when you replace the cover.

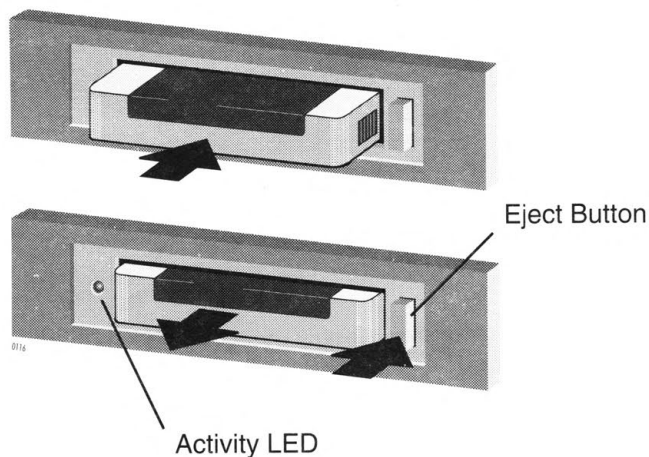
6. Secure the tape drive and any devices you may have unsecured during the installation.
7. Replace the computer cover and connect any peripherals you may have disconnected during the installation.
8. Plug the computer and any peripherals into an AC power outlet.

## ***Loading and Unloading Tape Cartridges***



**Caution:** Never remove a tape cartridge while the drive is active. Complete any tape operations and wait until the tape activity LED is off before ejecting a tape.

**To load** a cartridge, insert it with the metal base plate down. Push it into the drive until it locks into place. When fully inserted, the cartridge will be hidden from view.



**To unload** a cartridge, wait until the activity LED is off and then press the eject button. After the cartridge ejects, pull it straight out from the tape drive.

## Recommended Tapes

The drive operates with the tapes shown below:

<i>Description:</i>	<i>Conner:</i>	<i>Sony:</i>	<i>3M:</i>
<b>Unformatted 83 MB</b>	N/A	QDC2080	DC2080
<b>Formatted 83 MB</b>	N/A	QDC2080 <small>QIC80</small>	DC2080 XIMAT
<b>Unformatted 124 MB</b>	N/A	QDC2120	DC2120
<b>Formatted 124 MB</b>	250QT	QDC2120 <small>QIC80</small>	DC2120 XIMAT

## Setting The Write Protect Switch

DC2000 tape cartridges feature a write protect switch located in the upper left corner of the cartridge. You can set the switch to keep data from being written on the tape. Use this switch when you want to make sure that important data on the tape will not be overwritten.



Switch in non-protected  
(record) position.



Switch in protected  
(read only) position.

## ***Caring for Tape Cartridges***

---

DC2000 tape cartridges are ruggedly built, but should be handled with care to preserve the data they contain. Follow these guidelines when storing or using tape cartridges:



Never open the cartridge's tape access door or touch the tape itself. One fingerprint can prevent the drive from reading the tape.



Keep the cartridge away from sources of electromagnetic fields, such as telephones, dictation equipment, mechanical or printing calculators, motors, and bulk tape erasers. Do not lay the cartridge on the CRT, the computer's base unit, or the tape drive system.



Keep the cartridge away from direct sunlight and heat sources, such as radiators, warm air ducts, etc.



Keep the cartridge free of moisture. Do not wet or submerge a cartridge in any liquid.



Do not expose the cartridge to temperature extremes. Allow the cartridge to assume room temperature slowly.



## ***Cleaning the Tape Drive Head and Capstan***

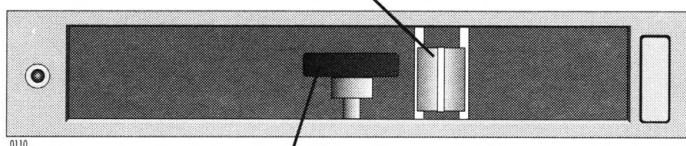
Follow these guidelines to help ensure that your tape drive provides long, reliable service:

- Operate the drive in a clean, dust free environment.
- Clean the tape drive head and capstan every month.



**Caution:** Do not use rubbing alcohol when cleaning the head and capstan.

- a.** Moisten a new, lint-free swab in 90% isopropyl alcohol until it is wet, but not dripping.
- b.** Hold the drive access door open and then wipe the drive head gently using a side-to-side motion.



- c.** Use a clean swab prepared as in step *a* to wipe the capstan. Rotate the capstan until the entire area is clean.
- d.** Allow the unit to dry for 3 minutes before using.

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## Troubleshooting

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If a power interruption occurs during a backup or restore, start over when the power returns. If the drive appears to fail during a backup or restore operation, try the following steps:

1. Remove and replace the cartridge and try again. Make sure you are using the correct type of tape cartridge.
2. Turn off all power to the computer and drive. Wait for the computer to power down and then start over.
3. Try a different tape, preferably one that has never been used.
4. Check all cable connections for proper contact.
5. Clean the tape drive head as instructed on page 15, and then try the operation again.

If any of the following apply, you need to change the drive select setting as described on pages 5, 6, and 7.

- You are using a Conner or other brand high-speed controller board.
- The floppy drive does not work.
- The floppy drive makes a clicking sound when the tape backup software is run.
- The tape drive can not be found by the tape drive software.

If your floppy drive does not respond and its access light stays on, you may have connected the data cable backwards. Check your installation.

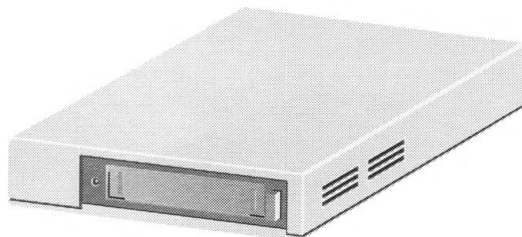
If problems persist, contact your service representative.

This chapter shows you how to connect a Conner Tape•Stor C250MQP parallel minicartridge drive to your IBM PC/AT-compatible laptop or desktop computer's parallel port.

Using software data compression, the drive stores up to 250MB of data.

You can daisy-chain a parallel printer to the drive. When the drive is not in active use, you can use your printer normally.

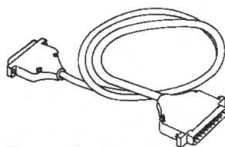
## ***Your Package Contains:***



Tape Drive



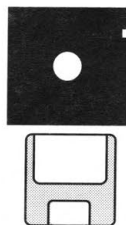
Power Transformer



Data Cable



Software Package



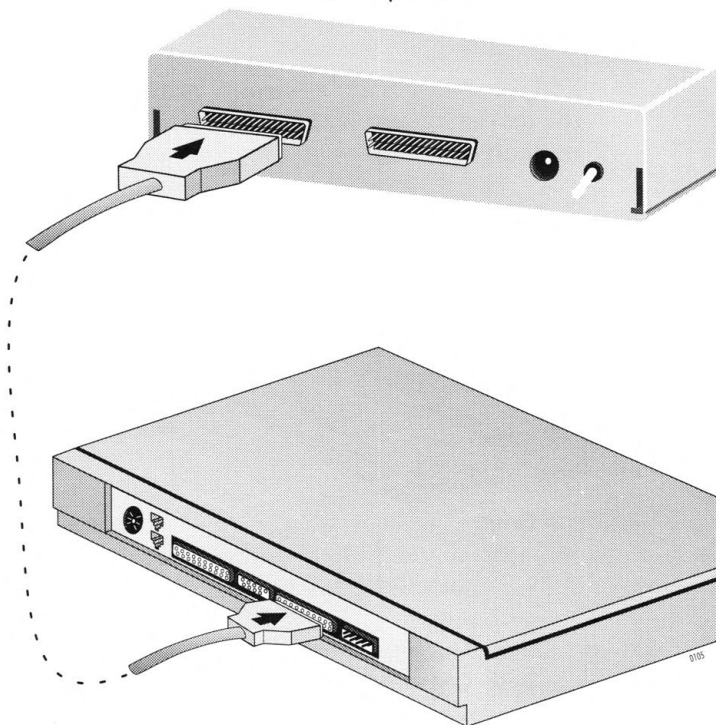
Tape Drive Installation Manual



**Caution:** Disconnect all power sources from your computer and the drive before attempting this installation, or you could damage your equipment.

1. Connect the data cable to the computer and the tape drive:

- a. Connect the data cable to the connector labelled **COMPUTER** on the rear of the tape drive.

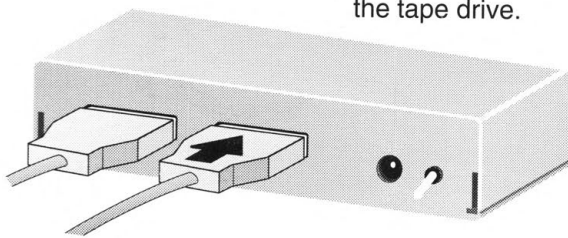


- b. Connect the other end of the cable to the parallel port on your computer.
    - c. Tighten the connector securing screws at each end of the cable.

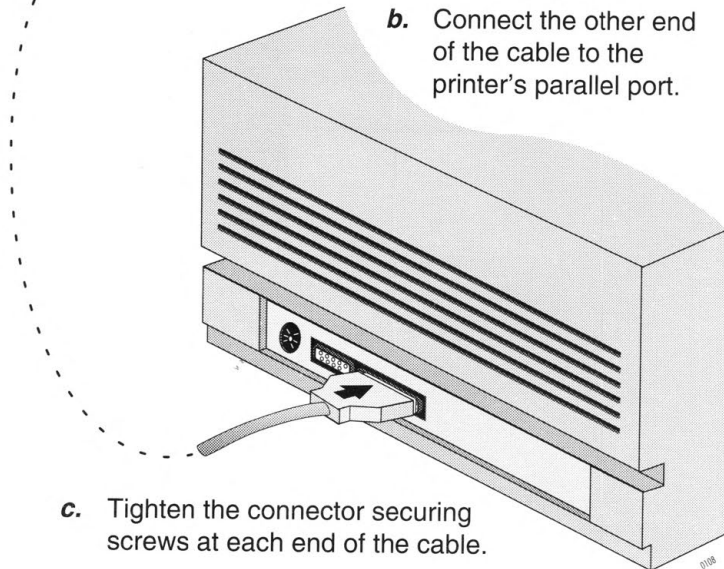
2. If you also want to connect a printer to the parallel port, install a data cable between the printer and tape drive:

► **Note:** To maintain FCC compliance you must use a shielded printer cable that does not exceed 10 feet in length.

- a. Connect the printer cable to the connector labelled **PRINTER** on the rear of the tape drive.



- b. Connect the other end of the cable to the printer's parallel port.

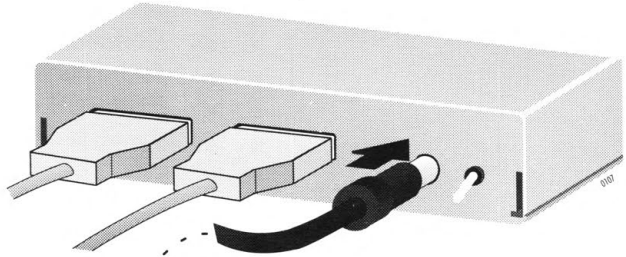


- c. Tighten the connector securing screws at each end of the cable.

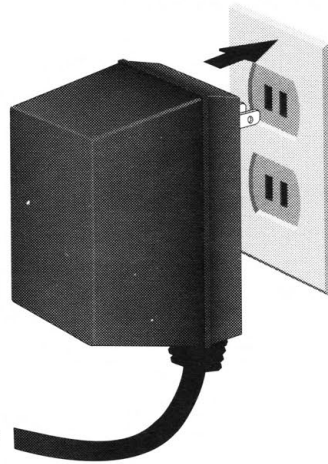
► **Note:** If you wish to remove the tape drive, disconnect both cables from the tape drive and join them. This allows you to continue printing without switching cables.

3. Connect the power cord and plug in the power transformer.

- a. Connect the transformer power cord to the power socket on the rear of the tape drive.



- b. Plug the transformer into a wall power outlet.

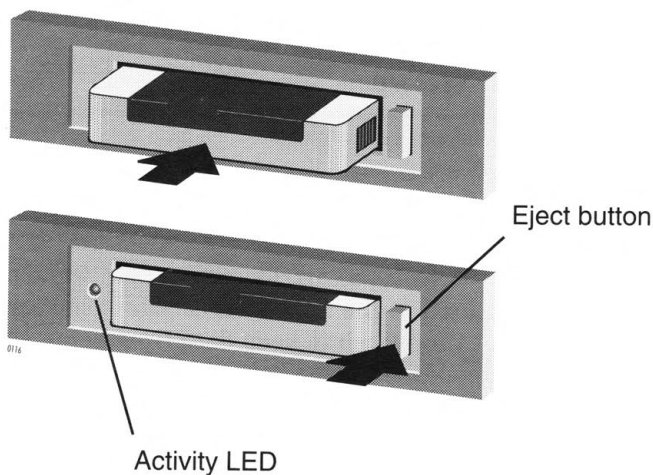


## Loading and Unloading Tape Cartridges



**Caution:** Never remove a tape cartridge while the drive is active. Complete any tape operations and wait until the tape activity LED is off before removing a tape.

**To load** a cartridge, insert it with the metal base plate down. Push it into the drive until it locks into place. When fully inserted, the cartridge will be hidden from view.



**To unload** a cartridge, wait until the activity LED is off and then press the eject button. After the cartridge ejects, pull it straight out from the tape drive.

## Recommended Tapes

The drive operates with the tapes shown below:

<i>Description:</i>	<i>Conner:</i>	<i>Sony:</i>	<i>3M:</i>
Unformatted 83 MB	N/A	QDC2080	DC2080
Formatted 83 MB	N/A	QDC2080 <sub>QIC80</sub>	DC2080 XIMAT
Unformatted 124 MB	N/A	QDC2120	DC2120
Formatted 124 MB	250QT	QDC2120 <sub>QIC80</sub>	DC2120 XIMAT

## Setting The Write Protect Switch

DC2000 tape cartridges feature a write protect switch located in the upper left corner of the cartridge. You can set the switch to keep data from being written on the tape. Use this switch when you want to make sure that important data on the tape will not be overwritten.



Switch in non-protected  
(record) position.



Switch in protected  
(read only) position.



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## Caring for Tape Cartridges

---

DC2000 tape cartridges are ruggedly built, but should be handled with care to preserve the data they contain. Follow these guidelines when storing or using tape cartridges:



Never open the cartridge's tape access door or touch the tape itself. One fingerprint can prevent the drive from reading the tape.



Keep the cartridge away from sources of electromagnetic fields, such as telephones, dictation equipment, mechanical or printing calculators, motors, and bulk tape erasers. Do not lay the cartridge on the CRT, the computer's base unit, or the tape drive system.



Keep the cartridge away from direct sunlight and heat sources, such as radiators, warm air ducts, etc.



Keep the cartridge free of moisture. Do not wet or submerge a cartridge in any liquid.



Do not expose the cartridge to temperature extremes. Allow the cartridge to assume room temperature slowly.

## ***Cleaning the Tape Drive Head and Capstan***

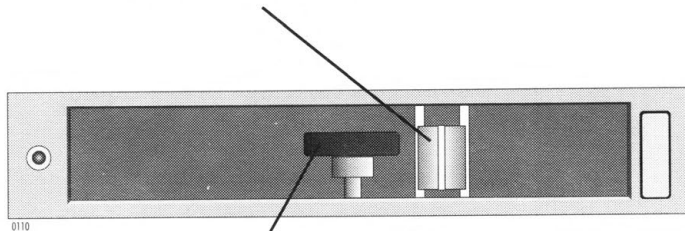
Follow these guidelines to help ensure that your tape drive provides long, reliable service:

- Operate the drive in a clean, dust free environment.
- Clean the tape drive head and capstan every month.



**Caution:** Do not use rubbing alcohol when cleaning head and capstan.

- a.** Moisten a clean, lint-free swab in 90% isopropyl alcohol until it is wet but not dripping.
- b.** Hold the drive access door open and wipe the drive head gently using a side-to-side motion.



- c.** Use a new swab saturated in 90% isopropyl alcohol to wipe the capstan. Rotate the capstan until the entire area is clean.
- d.** Allow the unit to dry for 3 minutes before using.

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## Enhancing Performance

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Here are some tips for obtaining optimum performance from your drive:

- Parallel port performance is directly related to CPU speed. If your computer has variable speed, set it to the highest speed.
- Read performance is approximately twice as fast on a bidirectional parallel port. If your computer's parallel port has a bidirectional mode, enable it. This will increase performance during restore and verify. It will not affect backup performance.
- Expanded memory managers such as EMM386.SYS and QEMM386.SYS can slow performance by as much as 20%. If you are using an expanded memory manager and your system is performing poorly, disable the memory manager. Extended memory managers such as HIMEM.SYS have no effect on parallel port performance.

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## **Troubleshooting**

---

If a power interruption occurs during a backup or restore, start over when the power returns. If a backup or restore operation fails, try the following steps:

1. Remove and replace the cartridge and try again. Make sure you are using the correct type of tape cartridge.
2. Turn off all power to the computer and drive. Wait for the computer to power down and then start over.
3. Try a different tape, preferably one that has never been used.
4. Check the cable connections for proper contact.
5. Clean the tape drive head as instructed on page 24, and then try the operation again.

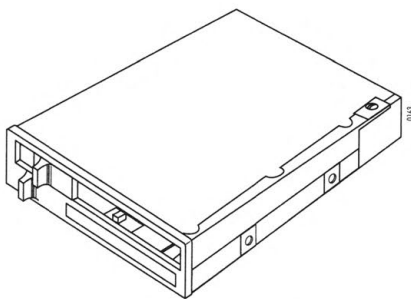
If problems persist, contact your service representative.

This chapter shows you how to install and maintain a Conner Tape • Stor C2150S or C2525S internal data cartridge drive.

The C2150S can store up to 250MB on a single data cartridge. The C2525S can store up to 525MB on a single data cartridge. Both drives are QIC-compatible.

The drives are shipped as complete, ready-to-install units.

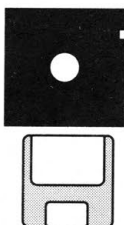
## ***Your Package Contains:***



Tape Drive



Software Package



Tape Drive Installation Manual

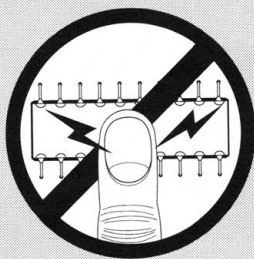
## Tools You Will Need

You may need a Phillips screwdriver to install the drive in your computer.

- **Note:** Be sure that your screwdriver is the correct size for the screws, or you could strip the screw heads.

## Take These Precautions

To protect your equipment from electrostatic damage, perform the installation at a staticsafe workstation. If one is not available follow these guidelines:



1. Work in an uncarpeted area.
2. Before removing the equipment from its anti-static bag, discharge static electricity by touching your computer's metal chassis (or any other grounded object) while touching the anti-static bag.
3. Do not touch circuit boards unless instructed to do so.

## Installing the Drive

---

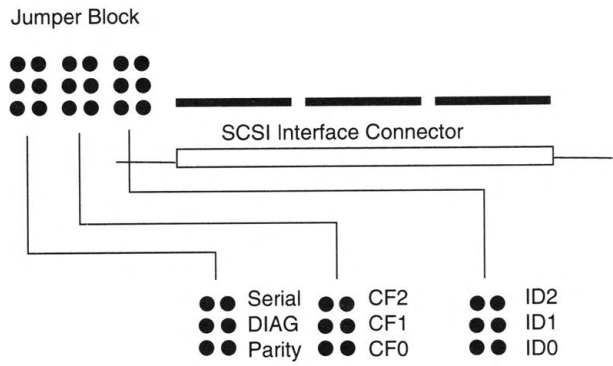


**Warning:** Disconnect all power sources from your computer before attempting this installation, or you may risk electrical shock.

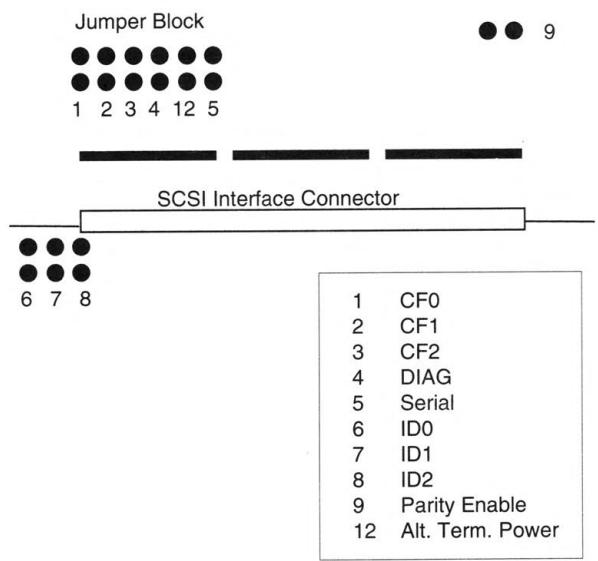
- ▶ **Note:** Because computer models can vary between manufacturers, you may need to refer to your computer manual for specific installation instructions.
- 1. Write down the serial number and model number shown on the drive and put this information in a safe place. You may need this information if you ever call for service.
- 2. Remove the computer cover and face plate from the drive bay in which you will install the drive.
  - ▶ **Note:** For better ventilation, we recommend that you install the drive in the lower half of a full-height opening.
- 3. If you have devices installed into any drive bays adjacent to the one selected, partially removing those devices may give you more working space.

4. Locate the jumpers on the back of the drive:

C2150S Jumper Locations



C2525S Jumper Locations





5. Set the jumpers as needed. Here is a summary of the jumper settings you can make.

<b><i>Jumpers:</i></b>	<b><i>Description:</i></b>
<b>CF0, CF1, and CF2</b>	<p>These jumpers are used for the C2150S drive only. The buffer disconnect size sets the maximum number of bytes that can be sent over the SCSI bus during a single data transfer phase. The Selectable Buffer Disconnect illustration that follows shows how to set these jumpers.</p> <p>For the C2525S, the buffer disconnect size is set using software commands. The default size is 14KB.</p>
<b>DIAG</b>	Not used.
<b>Serial</b>	Not used.
<b>ID0, ID1, and ID2</b>	<p>These three jumpers, used in combination, select a SCSI device address from 0 to 7. The factory default is 0 (all three jumpers unconnected).</p> <p>The SCSI Address Selection illustration that follows shows you how to set the jumpers to obtain desired addresses. Remember when selecting an address that no two devices on a SCSI chain can share the same address.</p>
<b>Parity Enable</b>	This jumper enables or disables parity checking for the SCSI bus. The factory default is parity disabled (not connected).
<b>Alt. Term. Power</b>	This jumper enables or disables terminator power. The factory default is terminator power disabled (not connected).

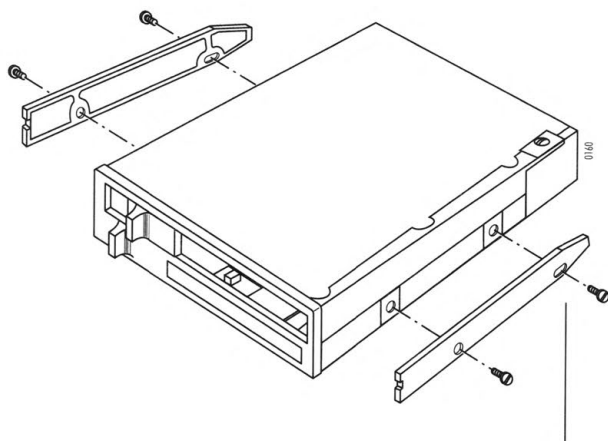
Selectable Buffer Disconnect

CF0	CF1	CF2	Buffer Size
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	2K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	4K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	6K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	8K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	12K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	16K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	24K
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	32K

SCSI Address Selection

ID0	ID1	ID2	SCSI Address
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	0
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	1
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	2
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	3
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	4
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	5
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	6
<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	7

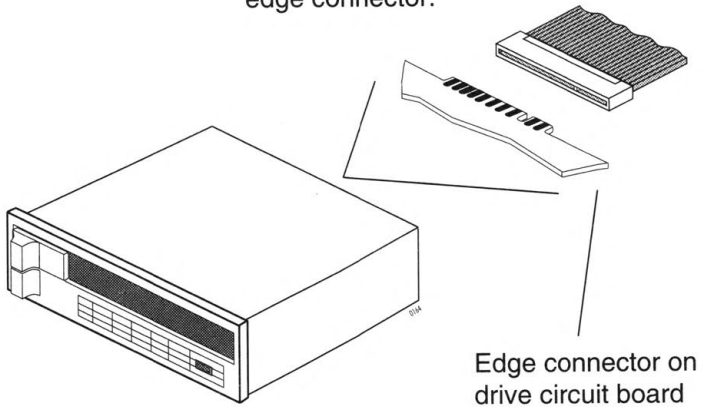
6. Attach slide rails to the drive, if required by your installation. Slide rails are not provided with the drive.



Install rails with the tapered ends to the back.

7. Connect the data cable and an available power cable to your tape drive:

Make sure you line up the plug in the data cable with the notch in the edge connector.

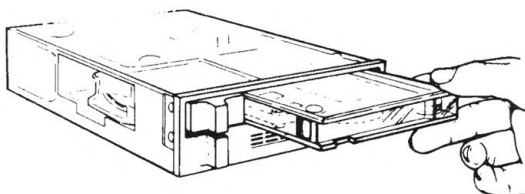


8. Secure the tape drive and any devices you may have unsecured during the installation.
9. Replace the computer cover and connect any peripherals you may have disconnected during the installation.
10. Plug the computer and any peripherals into an AC power outlet.

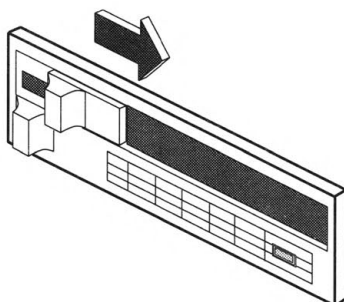
## Loading and Unloading Tape Cartridges

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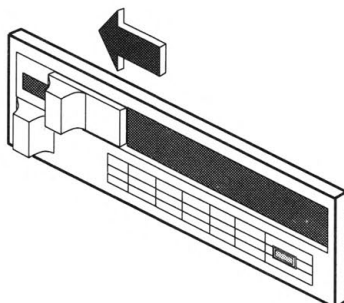
**To load** a cartridge, insert it with the label facing up and the metal baseplate down.



Push it into the drive and slide the lever toward the tape until it locks into place.



**To unload** a cartridge, wait until the drive's LED indicator is off and then slide the lever away from the tape opening until the tape is ejected.

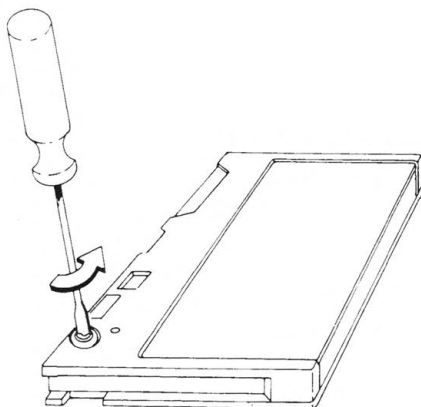


## Write-Protecting a Tape

---

To write-protect a tape (prevent the tape from being accidentally erased or overwritten), follow these steps:

1. Locate the black circle on the tape marked either "SAFE" or with a "Locked" icon.
2. Insert a screw driver into the black circle and rotate it so the arrow points toward "SAFE" or the "Locked" icon.



---

## Recommended Tapes

---

<i><b>Jumpers:</b></i>	<i><b>Description:</b></i>
<b>CF0, CF1, and CF2</b>	<p>These jumpers are used for the C2150S drive only. The buffer disconnect size sets the maximum number of bytes that can be sent over the SCSI bus during a single data transfer phase. The Selectable Buffer Disconnect illustration that follows shows how to set these jumpers.</p> <p>For the C2525S, the buffer disconnect size is set using software commands. The default size is 14KB.</p>
<b>DIAG</b>	Not used.
<b>Serial</b>	Not used.
<b>ID0, ID1, and ID2</b>	<p>These three jumpers, used in combination, select a SCSI device address from 0 to 7. The factory default is 0 (all three jumpers unconnected).</p> <p>The SCSI Address Selection illustration that follows shows you how to set the jumpers to obtain desired addresses. Remember when selecting an address that no two devices on a SCSI chain can share the same address.</p>
<b>Parity Enable</b>	This jumper enables or disables parity checking for the SCSI bus. The factory default is parity disabled (not connected).
<b>Alt. Term. Power</b>	This jumper enables or disables terminator power. The factory default is terminator power disabled (not connected).

## Caring for Tape Cartridges

---

Tape cartridges are ruggedly built, but should be handled with care to preserve the data they contain. Follow these guidelines when storing or using tape cartridges:



Never open the cartridge's tape access door or touch the tape itself. One fingerprint can prevent the drive from reading the tape.



Keep the cartridge away from sources of electromagnetic fields, such as telephones, dictation equipment, mechanical or printing calculators, motors, and bulk tape erasers. Do not lay the cartridge on the CRT, the computer's base unit, or the tape drive system.



Keep the cartridge away from direct sunlight and heat sources, such as radiators, warm air ducts, etc.



Keep the cartridge free of moisture. Do not wet or submerge a cartridge in any liquid.



Do not expose the cartridge to temperature extremes. Allow the cartridge to assume room temperature slowly.



---

## ***Cleaning the Tape Drive***

---

A small amount of dust or debris can affect the drive's performance; therefore, we suggest you follow this tape head cleaning schedule:

- after an initial pass with a new tape
- after eight hours of tape use
- whenever dirt or dust is visible

Recommended cleaning supplies include:

- Conner Head Cleaning Kit, P/N 91401
- Conner Fluid Refill Kit, P/N 91402
- Low-pressure aerosol air for cleaning the sensor holes

---

## Troubleshooting

---

If a power interruption occurs during a backup or restore, start over when the power returns. If the drive appears to fail during a backup or restore operation, try the following steps:

1. Remove and replace the cartridge and try again. Make sure you are using the correct type of tape cartridge.
2. Turn off all power to the computer and drive. Wait for the computer to power down and then start over.
3. Try a different tape, preferably one that has never been used.
4. Check all cable connections for proper contact.
5. Clean the tape drive head as instructed on page 39, and then try the operation again.

If problems persist, contact your service representative.

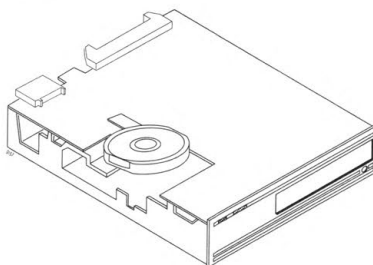
This chapter shows you how to install and maintain a Conner Tape•Stor C2750S internal data cartridge drive.

The C2750S is a QIC-compatible tape drive capable of high-speed, single-media storage, which meets the requirements of high-efficiency super server and network backup.

The drive stores up to 1.35GB of formatted data on 1/4 inch DC-9210 type cartridges. At a transfer rate of 600 KB/sec, the drive is capable of backing-up or restoring 1.35GB of data in less than 40 minutes.

The drive is shipped as a complete, ready-to-install unit.

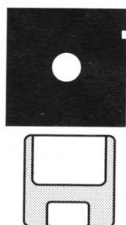
## ***Your Package Contains:***



Tape Drive



Software Package



Tape Drive Installation Manual

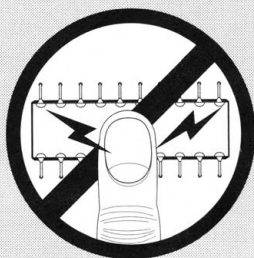
## Tools You Will Need

You may need a Phillips screwdriver to install the drive in your computer.

- **Note:** Be sure that your screwdriver is the correct size for the screws, or you could strip the screw heads.

## Take These Precautions

To protect your equipment from electrostatic damage, perform the installation at a staticsafe workstation. If one is not available follow these guidelines:



1. Work in an uncarpeted area.
2. Before removing the equipment from its anti-static bag, discharge static electricity by touching your computer's metal chassis (or any other grounded object) while touching the anti-static bag.
3. Do not touch circuit boards unless instructed to do so.

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## Installing the Drive

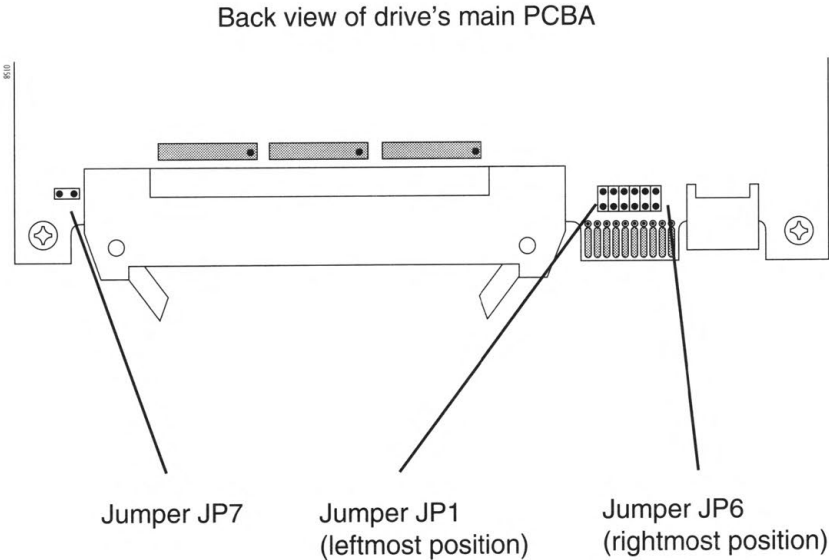
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**Warning:** Disconnect all power sources from your computer before attempting this installation, or you may risk electrical shock.

- ▶ **Note:** Because computer models can vary between manufacturers, you may need to refer to your computer manual for specific installation instructions.
- 1. Write down the serial number and model number shown on the drive and put this information in a safe place. You may need this information if you ever call for service.
- 2. Remove the computer cover and face plate from the drive bay in which you will install the drive.
  - ▶ **Note:** For better ventilation, we recommend that you install the drive in the lower half of a full-height opening.
- 3. If you have devices installed into any drive bays adjacent to the one selected, partially removing those devices may give you more working space.

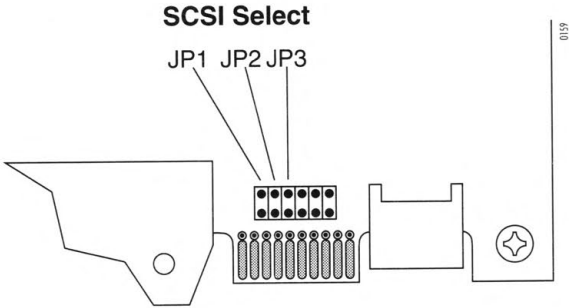
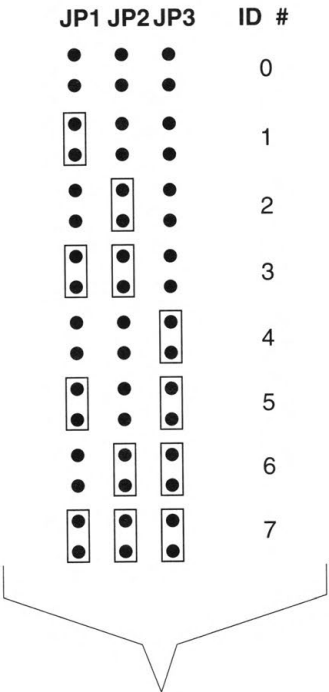
4. Locate the jumpers on the back of the drive:



5. Set the jumpers as needed. Here is a summary of the jumper settings you can make.

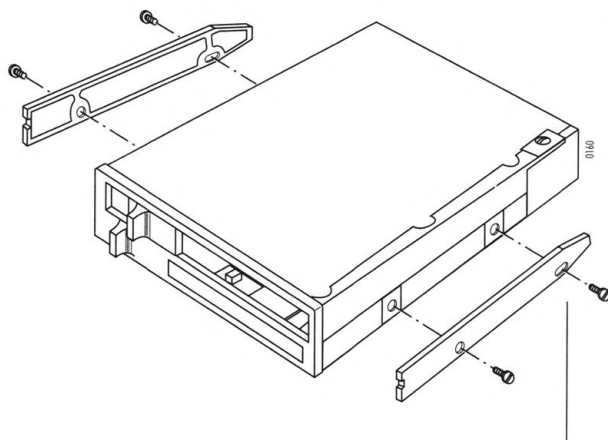
<b><i>Jumpers:</i></b>	<b><i>Description:</i></b>
<b>JP1, JP2, and JP3</b>	<p>These three jumpers, used in combination, select a SCSI device address from 0 to 7. The factory default is 0 (all three jumpers unconnected).</p> <p>The illustration on the next page shows you how to set the jumpers to obtain desired addresses. Remember when selecting an address that no two devices on a SCSI chain can share the same address.</p>
<b>JP4</b>	<p>This jumper is reserved and should be left unconnected.</p>
<b>JP5</b>	<p>This jumper enables or disables parity checking for the SCSI bus. The factory default is parity disabled (not connected).</p>
<b>JP6</b>	<p>This jumper is reserved and should be left unconnected.</p>
<b>JP7</b>	<p>This jumper enables or disables terminator power. The factory default is terminator power disabled (not connected).</p>

Here are the jumper settings you can use to set the SCSI address for the drive:



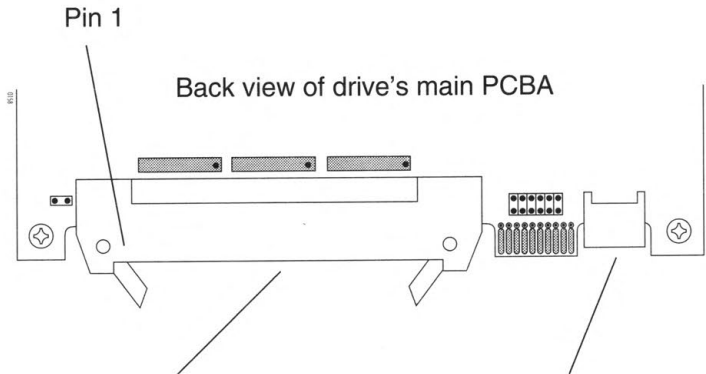


6. Attach slide rails to the drive, if required by your installation. Slide rails are not provided with the drive.



Install rails with the tapered ends to the back.

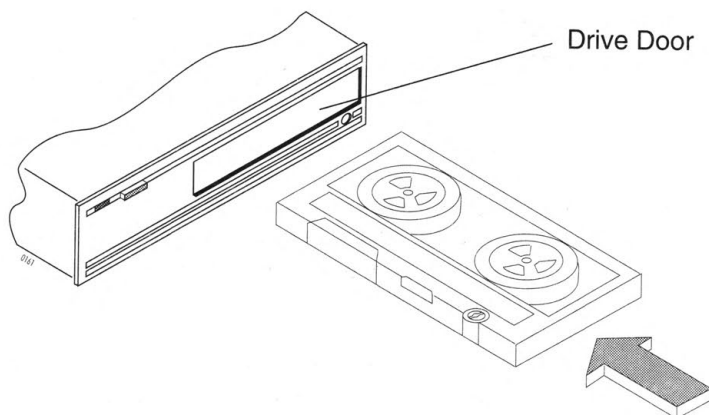
7. Connect the SCSI device data cable and an available power cable to your tape drive:



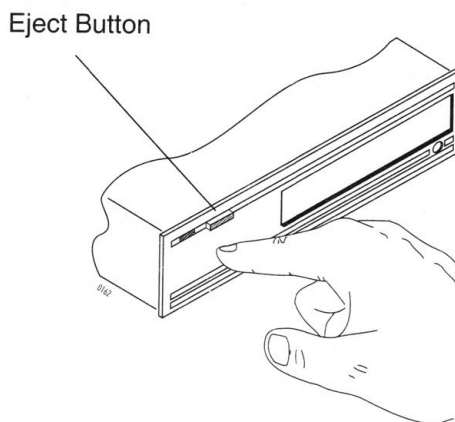
- a. Connect the data cable here. It is keyed at the top of the connector to help ensure correct connection. If your data cable's connector is not keyed, align pin 1 on the cable with pin 1 on the connector.
  - b. Connect the power cable here. It is keyed to help ensure correct connection.
8. Secure the tape drive and any devices you may have unsecured during the installation.
  9. Replace the computer cover and connect any peripherals you may have disconnected during the installation.
  10. Plug the computer and any peripherals into an AC power outlet.

## Loading and Unloading Tape Cartridges

**To load** a cartridge, insert it with the label facing up and the metal baseplate down. Push it into the drive until it locks into place. When fully inserted, the cartridge will be hidden from view.



**To unload** a cartridge, press the eject button. After about ten seconds, the cartridge will eject. Pull it straight out from the tape drive.



## Manually Unloading a Cartridge

If a power outage or malfunction of the auto-load feature occurs while a cartridge is loaded, you can manually remove the cartridge. You will need a standard 1/8" (3.2 mm) allen wrench to remove the cartridge.



**Caution:** Be sure the power is turned off. Never force the wrench if you feel heavy resistance in the instructions that follow. Otherwise, you could damage the drive.

First, determine the position of the cartridge. Either:

- The failure occurred with the cartridge **not fully loaded**. The notch on the left side of the metal cartridge baseplate is not over the roller, or it is recessed.
- The failure occurred with the cartridge **fully loaded**. The notch on the left side of the metal cartridge baseplate is over the roller.

### ***Cartridge not fully loaded***

1. Insert the allen wrench into the socket in the lower right-hand corner of the bezel, beneath the cartridge opening.
2. Push the wrench in and turn it clockwise until the cartridge reaches the fully-loaded position with the metal cartridge baseplate over the roller.
3. Proceed to the fully-loaded position instructions.

**Cartridge fully loaded**

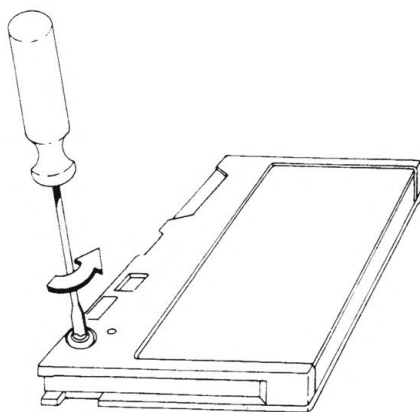
1. Insert the allen wrench into the socket in the lower right-hand corner of the bezel, beneath the cartridge opening.
2. Push the wrench and turn counter-clockwise until the cartridge reaches the normal unloaded position. It takes approximately 5 full turns to unload a cartridge.

**Write-Protecting a Tape**

---

To write-protect a tape (prevent the tape from being accidentally erased or overwritten), follow these steps:

1. Locate the black circle on the tape marked either "SAFE" or with a "Locked" icon.
2. Insert a screw driver into the black circle and rotate it so the arrow points toward "SAFE" or the "Locked" icon.



---

## ***Recommended Tapes***

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<b><i>Cartridge Type:</i></b>	<b><i>Format:</i></b>	<b><i>Capacity:</i></b>
<b>Conner 90511</b>	Read/Write QIC-1350	1350MB
<b>Magnus 9100</b>	Read/Write QIC-1000	1000MB
<b>DC6525/Conner 90509</b>	Read/Write QIC-525	525MB
<b>DC6320</b>	Read/Write QIC-525	320MB
<b>DC6250/Conner 90507</b>	Read/Write QIC-150 Read QIC-24	250MB 100MB
<b>DC6150/Conner 90504</b>	Read/Write QIC-150 Read QIC-24	150MB 60MB
<b>DC600A/Conner 560</b>	Read/Write QIC-120 Read QIC-24	125MB 60MB
<b>DC300 XLP</b>	Read QIC-24	45MB

## Caring for Tape Cartridges

---

Tape cartridges are ruggedly built, but should be handled with care to preserve the data they contain. Follow these guidelines when storing or using tape cartridges:



Never open the cartridge's tape access door or touch the tape itself. One fingerprint can prevent the drive from reading the tape.



Keep the cartridge away from sources of electromagnetic fields, such as telephones, dictation equipment, mechanical or printing calculators, motors, and bulk tape erasers. Do not lay the cartridge on the CRT, the computer's base unit, or the tape drive system.



Keep the cartridge away from direct sunlight and heat sources, such as radiators, warm air ducts, etc.



Keep the cartridge free of moisture. Do not wet or submerge a cartridge in any liquid.



Do not expose the cartridge to temperature extremes. Allow the cartridge to assume room temperature slowly.

---

## ***Cleaning the Tape Drive***

---

A small amount of dust or debris can affect the drive's performance; therefore, we suggest you follow this tape head cleaning schedule:

- after an initial pass with a new tape
- after eight hours of tape use
- whenever dirt or dust is visible

Recommended cleaning supplies include:

- Conner Head Cleaning Kit, P/N 91401
- Conner Fluid Refill Kit, P/N 91402
- Low-pressure aerosol air for cleaning the sensor holes

---

## ***Troubleshooting***

---

If a power interruption occurs during a backup or restore, start over when the power returns. If the drive appears to fail during a backup or restore operation, try the following steps:

1. Remove and replace the cartridge and try again. Make sure you are using the correct type of tape cartridge.
2. Turn off all power to the computer and drive. Wait for the computer to power down and then start over.
3. Try a different tape, preferably one that has never been used.
4. Check all cable connections for proper contact.
5. Clean the tape drive head, and then try the operation again.

If problems persist, contact your service representative.



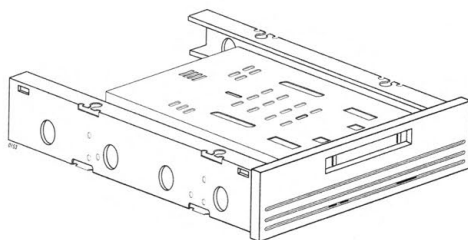
This chapter shows you how to:

- set jumpers and SCSI DIP switch settings before installing a Conner Tape • Stor C4320RT or C4324RP internal DAT drive
- maintain these units

The C4320RT provides backup capacities of up to 2GB; the C4324RP provides backup capacities of up to 4GB.

The drives are shipped as complete, ready-to-install units.

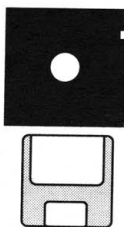
## ***Your Package Contains:***



Tape Drive



Software Package



Tape Drive Installation Manual

## Tools You Will Need

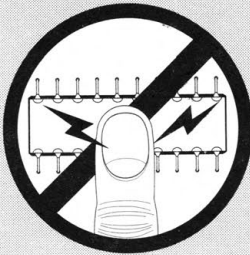
You may need one or both of these tools to install the drive in your computer:

- a small, pointed object, such as a pen, for manipulating the DIP switches
- a Phillips screwdriver, for mounting the drive

► **Note:** Be sure that your screwdriver is the correct size for the screws, or you could strip the screw heads.

## Take These Precautions

To protect your equipment from electrostatic damage, perform the installation at a staticsafe workstation. If one is not available follow these guidelines:



1. Work in an uncarpeted area.
2. Before removing the equipment from its anti-static bag, discharge static electricity by touching your computer's metal chassis (or any other grounded object) while touching the anti-static bag.
3. Do not touch circuit boards unless instructed to do so.

## Installing the Drive

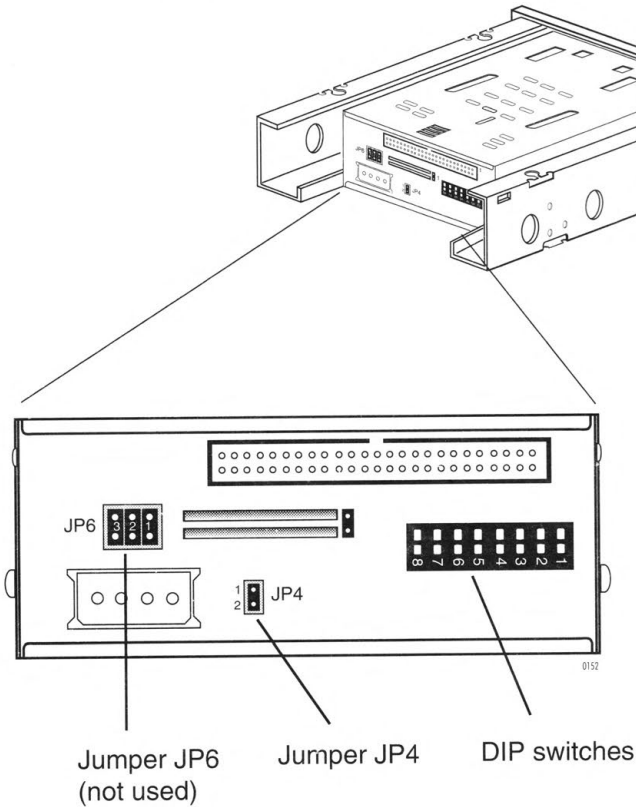
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**Warning:** Disconnect all power sources from your computer before attempting this installation, or you may risk electrical shock.

- ▶ **Note:** Because computer models can vary between manufacturers, you may need to refer to your computer manual for specific installation instructions.
- 1. Write down the serial number and model number shown on the drive and put this information in a safe place. You may need this information if you ever call for service.
- 2. Remove the computer cover and face plate from the drive bay in which you will install the drive.
- 3. If you have devices installed into any drive bays adjacent to the one selected, partially removing those devices may give you more working space.

4. Locate the jumpers and DIP switches on the back of the drive:



5. Set jumper JP4, if necessary for your installation.

When a jumper is installed on JP4, +5V alternate terminating power is available at pin 26 on the SCSI interface.

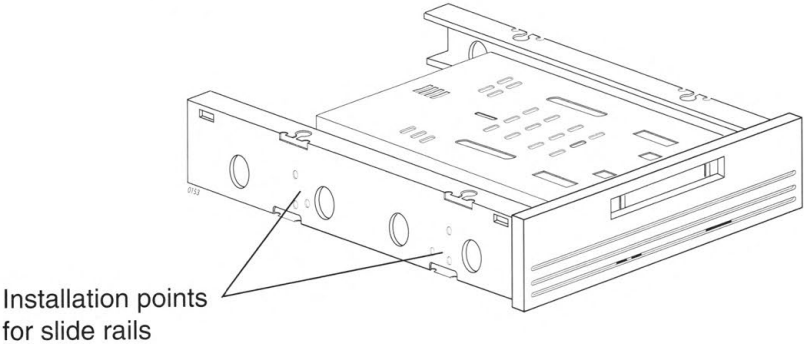
6. Set DIP switches as needed. Here is a summary of the DIP switch settings you can make.

<b>DIP Switches:</b>	<b>Description:</b>
<b>S1, S2, and S3</b>	<p>These three switches, used in combination, select a SCSI device address from 0 to 7. The factory default is 0 (all three switches in the OFF position).</p> <p>The table on the next page shows you how to set the switches to obtain desired addresses. Remember when selecting an address that no two devices on a SCSI chain can share the same address.</p>
<b>S4</b>	<p>This switch selects either SCSI-1 or SCSI-2 as the interface to the computer system. The factory default is SCSI-2 (ON position).</p> <p>The SCSI-1 interface conforms to the ANSI X3.131-1986 standard. SCSI-2 includes everything in SCSI-1 plus additional commands.</p>
<b>S5</b>	<p>This switch enables or disables parity checking for the SCSI bus. The factory default is parity disabled (OFF position).</p>
<b>S6</b>	<p>For the model C4324RP drive, this switch enables or disables DDS-DC data compression pass-through mode. The default is DDS pass-through mode disabled (OFF position), which makes data compression active.</p> <p>Your tape control software can override this switch setting, regardless of which position it is in.</p> <p>For the model C4320RT drive, this switch is reserved and should be left in the OFF position.</p>
<b>S7</b>	<p>This switch is reserved and should not be used.</p>
<b>S8</b>	<p>This switch enables or disables execution of power-on self-test diagnostics. The default is self-test mode disabled (OFF position).</p> <p>If enabled (ON position), the drive will respond to SCSI commands after successful completion of the test (about 5 seconds).</p>

Here are the switch settings you can use to set the SCSI address for the drive:

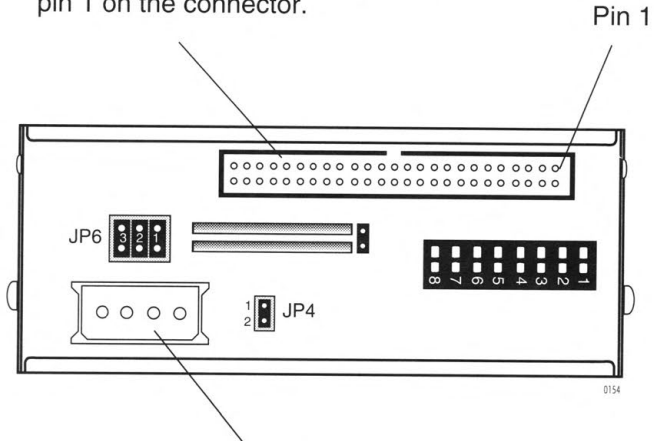
SCSI Device Address		S1	S2	S3
0	On			
	Off			
1	On			
	Off			
2	On			
	Off			
3	On			
	Off			
4	On			
	Off			
5	On			
	Off			
6	On			
	Off			
7	On			
	Off			

7. Attach slide rails to the drive, if required by your installation. Slide rails are not provided with the drive.



8. Connect the SCSI device data cable and an available power cable to your tape drive:

- a. Connect the data cable here. It is keyed at the top of the connector to help ensure correct connection. If your data cable's connector is not keyed, align pin 1 on the cable with pin 1 on the connector.

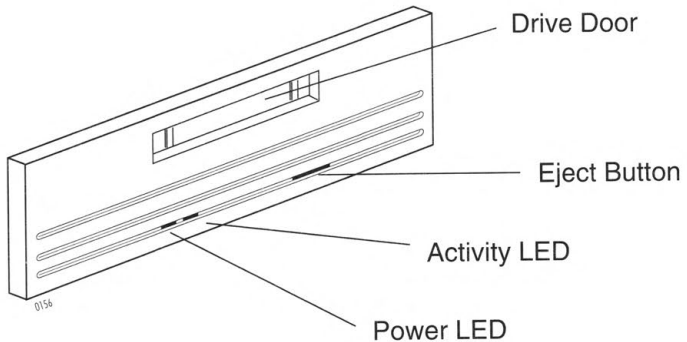


- b. Connect the power cable here. It is keyed to help ensure correct connection.
9. Secure the tape drive and any devices you may have unsecured during the installation.
  10. Replace the computer cover and connect any peripherals you may have disconnected during the installation.
  11. Plug the computer and any peripherals into an AC power outlet.

## Loading and Unloading Tape Cartridges

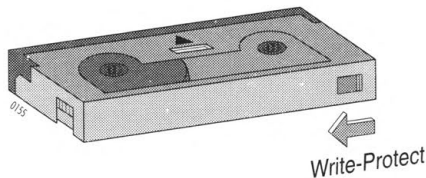
**To load** a cartridge, insert it with the label up and the spindle openings down. Push it into the drive until it locks into place. When fully inserted, the cartridge will be hidden from view.

**To unload** a cartridge, wait until the activity LED is off and then press the eject button. After the cartridge ejects, pull it straight out from the tape drive.



## Setting The Write Protect Switch

DAT tape cartridges feature a write protect switch located on the top left corner of the cartridge. You can set the switch to keep data from being written on the tape. Use this switch when you want to make sure that important data on the tape will not be overwritten.





## Qualified DAT Media

The drive supports both 60 and 90 meter DAT media. You should only use computer-grade DAT media qualified by Conner in the drive. Qualified tapes include:

<i><b>Tape Description:</b></i>	<i><b>Part Number:</b></i>
Conner DAT Data Cassette (60m)	31300
Conner DAT Data Cassette (90m)	32000

## Interpreting the Drive's LEDs

<i><b>LED:</b></i>	<i><b>Action:</b></i>	<i><b>Description:</b></i>
<b>Power (green)</b>	On steady	The drive is receiving power and operating normally.
	Flashing slowly	A cassette is inserted which generates errors beyond a predefined error threshold (warning only).
	Flashing slowly (while Activity LED is also illuminated)	A prerecorded audio cassette is inserted and is being played automatically.
	Flashing rapidly	The drive could not write to the tape correctly (error).
<b>Activity (amber)</b>	On steady	The drive is ready from or writing to the tape.
	Flashing rapidly	Condensation was detected in the drive, or a hardware fault occurred.

## Caring for Tape Cartridges

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DAT tape cartridges are ruggedly built, but should be handled with care to preserve the data they contain. Follow these guidelines when storing or using tape cartridges:



Never open the cartridge's tape access door or touch the tape itself. One fingerprint can prevent the drive from reading the tape.



Keep the cartridge away from sources of electromagnetic fields, such as telephones, dictation equipment, mechanical or printing calculators, motors, and bulk tape erasers. Do not lay the cartridge on the CRT, the computer's base unit, or the tape drive system.



Keep the cartridge away from direct sunlight and heat sources, such as radiators, warm air ducts, etc.



Keep the cartridge free of moisture. Do not wet or submerge a cartridge in any liquid.



Do not expose the cartridge to temperature extremes. Allow the cartridge to assume room temperature slowly.

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## ***Cleaning the Tape Drive***

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A small amount of dust or debris can affect the drive's performance; therefore, we suggest you follow this tape head cleaning schedule:

- whenever the green Power LED flashes
- after every 25 hours of use

You can use the Conner Head Cleaning Kit (P/N 91301) to clean the drive.

► **Note:** Do not use a cleaning cassette designed for use with DAT audio drives. Your drive will not recognize this type of cassette.

Each time you use the cleaning cassette, the tape advances over an unused portion. Eventually, the entire cassette is used and you must purchase a new one (the drive does not rewind a cleaning cassette). A cleaning cassette provides approximately 100 uses.

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## **Troubleshooting**

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If a power interruption occurs during a backup or restore, start over when the power returns. If the drive appears to fail during a backup or restore operation, try the following steps:

1. Remove and replace the cartridge and try again. Make sure you are using the correct type of tape cartridge.
2. Turn off all power to the computer and drive. Wait for the computer to power down and then start over.
3. Try a different tape, preferably one that has never been used.
4. Check all cable connections for proper contact.
5. Clean the tape drive head as instructed on page 65, and then try the operation again.

If problems persist, contact your service representative.

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